INTRODUCTION

The Arizona Social Indicator Study

The Social Indicator Study was originally funded by the Arizona State Prevention Needs Assessment project with the Behavioral Health Division of the Arizona Department of Health Services (ADHS). This state needs assessment had been funded, in turn, by the Center for Substance Abuse Prevention (CSAP) at the Substance Abuse and Mental Health Services Administration (SAMHSA) in the U.S. Department of Health and Human Services. The contract with SAMHSA mandated collection of a specific set of social indicators to provide standardized data collection across the counties of the United States. This list of *Validated Archival Indicators of Risk and Outcome Variables that Predict Problem Behavior* was used to collect and define the variables for data at the county level for the years 1997 and 1999. A report of these social indicators was made available to the state and county agencies through the Prevention Needs Assessment and can be accessed at the following website (www. hs.state.az.us/bhs/prevention/index.htm).

The goal of the original study was to develop a process for collection and monitoring of archival data from across state agencies that could be used as accessible measures of environmental or social variables associated with adolescent substance use. During the past year, the Arizona Social Indicator Study received funding as a contract from the Governor's Task Force on Families and Communities to continue the collection and description of various social indicator rates for data from 2000 and 2001 at the county levels and for selected communities within the state.

Use of Social Indicators

The assessment and tracking of social indicators in a statewide prevention needs assessment project is important since these "environmental" variables can potentially be utilized to predict risk for substance abuse in specific geographical areas of the state. When used in conjunction with other methods of assessing need, the effectiveness of the overall community needs assessment is enhanced (Fiorentine, 1994). These indicators can serve as relatively accessible measures of protective and risk factors that are available to be examined over time and to provide evidence for the need to focus on specific prevention message content and/or geographical areas for intervention.

The level of need for prevention services cannot be determined through simple counts of the number of current substance users within a given population. Methods for assessing the probability (or risk) of future substance use among those not currently using are needed, along with an assessment of the resources currently available within the population or community (Arthur & Blitz, 2000). These assessments can help a community reduce the probability of future drug abuse by providing them with tools to prioritize specific intervention targets and populations. A general model suggests that effective preventive programming requires: (1) information on the incidence and prevalence of substance abuse within a population, (2) information on the risk and protective factors for substance abuse to and finally (3) community-specific, multi-component strategies that focus on the risk and protective factors identified and prioritized in the population (Hawkins, et al, 1995).

The theoretical underpinnings of this Social Development Model (Hawkins, Catalano, & Miller, 1992) provide guidance in program planning based on a risk reduction approach and support the utility of epidemiological data, such as archival social indicators, to inform prevention policy. In essence, this model recognizes that several different, and frequently co-occurring, sociological variables are associated with substance abuse. It acknowledges that protective processes may reduce the negative effects of the presence of risk factors. This model also recognizes there are potential ecological or community factors that can interact with substance abuse or other problem behaviors. Thus, it becomes essential to identify geographical areas or subpopulations where protective factors are low or risk exposure is high. Especially when resources are limited, it is mandatory to prioritize risk factors and intervene in regions or with populations where higher risk factors exist.

Epidemiological data provide an empirical foundation for substance abuse prevention policy and programming by establishing the prevalence and intensity of risk and protective factors over time within communities, counties, regions, and states. With the assistance of a data-based monitoring system, policy and resource allocation can be targeted to preventive interventions that more effectively match needs.

Although there are archival, population-based data that have appeared relevant to the ecological assessment of substance abuse risk, only recently have they been systematically assembled and assessed for their validity and sensitivity as indicators of the risk for substance abuse in specific geographical areas. Given the relatively low cost associated with the collection of social indicators, in contrast to the collection of survey data, it should be a primary method in establishing an efficient risk monitoring system. However, there are problems associated with

their use (Cagle & Banks, 1986; Gruenewald, 1997). To achieve a valid risk monitoring system, systematic assessment of the indicators' validity and sensitivity to change over time and their utility for replacing or supplementing survey measures of risk and protective factors as a basis for prevention policy and planning is needed.

Social indicators do not always capture precisely the concepts they are intended to measure. They can, however, serve as useful surrogates when a more precise measure is unavailable. For example, the rate of juvenile arrests for violent crimes is an indicator of violent acts among juveniles, but it is not an ideal measure because it does not capture those violent acts that do not result in an arrest. Thus, the 'events' that make up the indicator rates may overestimate or underestimate the true prevalence of the outcome of interest. However, as long as the indicators represent a constant proportion of the true prevalence of the problem behavior, trends in the outcome indicators are meaningful.

The benefits of collecting ecological or social indicators include increased data comparability and availability across geographic areas of the state and for multiple years, and low cost and ease of data collection. When data are standardized, organized according to risk factors, and presented in comparable units (such as percentages or rates per thousand individuals in the population), relative risk across regions, counties, and communities can be assessed and compared for planning purposes. Comparisons of indicators of specific risk factors allow a means for planners to identify and prioritize risk factors to be targeted with focused prevention efforts in identified geographical areas or population groups.

The Six-State Consortium (a SAMHSA-funded prevention needs assessment project) completed a three year project to study the validity and utility of a set of social indicators as measures of specific, empirically established risk factors. While further analyses need to be done on the social indicator approach to monitoring individual risk factors, the results were encouraging. Thirteen risk factors and 40 indicators were identified that showed a strong correlation with rates of substance abuse in adolescents and risk factors measured through surveys. In addition, many of the indicators had strong face validity and would provide useful information to program planners to determine what specific types of prevention services were needed (such as family-focused, school-focused, or community-focused).

Risk Factors and Social Indicators

Thirteen risk factors and 40 social indicators were included in the *Validated Archival Indicators of Risk and Outcome Variables that Predict Problem Behavior*. These risk factors and their associated social indicators are listed in Table 1.

In this report, risk factors are characteristics of individuals or family, school or community environments that are related to an increased likelihood of youth problem behaviors, like substance abuse. In contrast, protective factors are characteristics related to a decreased likelihood of such behaviors. These factors can be interrelated, and efforts to reduce risk and increase protection often require multidimensional approaches. The social indicators are actual measures of specific behaviors or experiences within a community (e.g. arrest rates for non-violent crimes or percent of population voting in elections) that try to characterize the underlying risk or protective factor using an archival data source.

Limitations of Archival Data: Cautions

Most of the indicator variables in this study are aggregate measures, meaning they are summaries of observations derived from individuals in the group. In this type of analysis, the social indicator variables are ecological variables with the unit of analysis the group (e.g. the county). Within each geographic unit, we do not actually know the joint distribution of any combination of variables at the individual level. For instance, we do not know the joint distribution of whether an individual is from a divorced home and a substance user, or whether a person from a high poverty area is actually below the poverty level. As noted by numerous statisticians and epidemiologists, it can be misleading to use ecological variables as proxies for individual data in models to predict individual behavior. This makes ecological analyses particularly prone to a type of bias known as the ecological fallacy (Morgenstern, 1998). The potential for ecological fallacy will be particularly relevant when comparing the risk profile information with the student survey results

The aggregate variables, however, often measure a different construct than a similar variable at the individual level. The variable may be the social environment or context in which the individual lives, and this environment may be distinct from the personal attribute of the individual (Susser, 1994). The creation of a risk profile from social indicator data for substance abuse within communities should not imply that community characteristics are equivalent to individual-level characteristics. These ecological variables can be useful tools to define high-risk groups for community intervention and education programs (Feinleib, 1998).

Another problem inherent in ecological analyses is temporal ambiguity. It is often unclear whether the various social indicator variables came as a result of the outcome (high or low substance abuse rates) or that they led to the outcome.

Finally, it must be remembered that these social indicator data are based on archival data collected within the state by multiple agencies for multiple purposes, none of which included prevention assessment. While the use of archival data can be time and cost effective, there are limitations to its utility. There are distinct variations in the geographic boundaries used by the different collecting agencies. For instance, some information is collected only at the zipcode level and others only at the city jurisdiction level. Since there is not perfect congruity between zipcodes and city jurisdictions, if zipcode information is to be aggregated to the city level, a set of assumptions and interpolations will need to be made. The appropriateness of these assumptions need to be kept in mind while reviewing the risk profiles. Another issue is that data systems used within the agencies for collecting and archiving data are constantly changing. Variables that are available one year for the Social Indicator Study may be modified, or even eliminated, by a reporting agency another year. Definitions used to structure the variable can also change, making it necessary to annually review the data sources being received by an archival monitoring system

Measures Included for Years 2000 and 2001

This Social Indicator Study Report provides measures of the frequency of various social indicators at the state and county level for two different years. A subset of indicators is then reported for fourteen communities or jurisdictions across the State. Several of the individual indicators included in this report are replacements for those in the original list distributed by SAMHSA. Also, some of the variables from the 1997-1999 report were deleted because of non-availability. Table 1 indicates which of the indicator variables are in the original SAMHSA list and which are included in this report by county and community/jurisdiction.

While standard definitions for each of the social indicators were provided by SAMHSA and were used when possible, it became necessary to refine a number of the definitions due to data availability. In the Data Definitions section of this report, we have provided the definitions that were used in this report (labeled “ADHS Definition”).

Simple tabular presentations of rates and corresponding confidence intervals were prepared for each social indicator for each county and for the state. Maps of the relative frequency of the social indicator across the counties were developed. Social indicator data were also provided in profiles of all indicators for each county. The methods used to construct the variables, rates,

confidence intervals, z-scores are described in the Methodology section of the report. The population estimates used to estimate the rates for counties and communities are presented in the Data Definitions section.

Table 1. Social Indicators of Risk and Outcome Variables that Predict Problem Behavior by whether mandated by SAMHSA and then whether available

			Included in 2000 & 2001 Report	
Risk Factor	**Social Indicator**	**SAMHSA**	**County**	**Community**
Availability of Drugs				
	Alcohol Sales Outlets	X	X	X
	Tobacco Sales Outlets	X	O	O
Transitions and Mobility				
	New Home Construction	X	X	X
	Households in Rental Properties	X	X	X
	Net Migration	X	O	O
Low Neighborhood Attachment and Community Disorganization				
	Population Voting in Elections	X	X	O
	Prisoners in State & Local Correctional Systems	X	X	O
Extreme Economic and Social Deprivation				
	Unemployment	X	X	X
	Free and Reduced Lunch Program	X	X	X
	Temporary Assistance for Needy Families	X	0	0
	Food Stamp Recipients	0	X	X
	Adults Without High School Diploma	X	X	X
	Single Parent Family Households	X	X	X
Family History of Substance Abuse				
	Adults in Alcohol and Other Drug (AOD) Treatment Programs	X	O	O

			Included in 2000 & 2001 Report	
Risk Factor	**Social Indicator**	**SAMHSA**	**County**	**Community**
Substance Use				
	Juvenile Alcohol-Related Arrests	X	X	X
	Juvenile Drug-Related Arrests	X	X	X
	Adult Alcohol-Related Arrests	X	X	X
	Adult Drug-Related Arrests	X	X	X
	Adult Drunken Driving Arrests	X	X	X
	Alcohol Related Traffic Fatalities	X	X	0
	Drug Use in Pregnancy	X	O	O
	Alcohol Use in Pregnancy	O	X	X
	Tobacco Use in Pregnancy	O	X	X
Violence				
	Juvenile Arrests for Violent Crimes	X	X	X
	Adult Arrests for Violent Crimes	X	X	X
	Homicides	X	X	O
Non-Violent Crimes				
	Juvenile Arrests for Curfew, Vandalism, and Disorderly Conduct	X	X	X
	Juvenile Arrests for Property Crimes	X	X	X
	Adult Arrests for Property Crimes	X	X	X
Suicide				
	Adolescent Suicide	X	X	O
Adolescent Sexual Behavior				
	Adolescent Pregnancies	X	X	O
	Birthrate Among Juveniles	X	X	X
Family Management Problems				
	Children Living Away from Parents	X	X	X

			Included in 2000 & 2001 Report	
Risk Factor	**Social Indicator**	**SAMHSA**	**County**	**Community**
	Children Living in Foster Care	X	X	O
Family Conflict				
	Divorce	X	X	O
	Domestic Violence Arrests	X	O	O
Low Commitment to School				
	Event Dropouts	X	X	O
	Status Dropouts	X	X	O
Early Initiation of the Problem Behavior				
	Dropouts Prior to Ninth Grade	X	X	O
	Vandalism Arrests, Age 10-14	X	X	X
	Alcohol-Related Arrests, Age 10-14	X	X	X
	Personal and Property Crime Arrests, Age 10-14	X	X	X